March 18, 2015

Situation Report: Tulane National Primate Research Center (TNPRC) Incident

Situation Summary

- Two macaques at Tulane's National Primate Research Center (TNPRC) were reported to have been infected with the bacteria Burkholderia pseudomallei (the cause of Melioidosis) in November, 2014. One animal (IL38) was euthanized on November 26, 2014 and the remaining animal (ID22) had initially recovered but fell ill and was euthanized on February 19, 2015. Two additional macaques, animal 3 (JD78) and animal 4 (HM81) have recently tested positive for antibodies and are both being monitored at this time. A 5th macaques (IL88) was reported euthanized on Feb 23rd. Macaques (6,7,8,) tested positive but are not showing symptoms.
- *According to the CDC Burkholderia Pseudomallei is a bacterium endemic to Southeast Asia and Northern Australia, and is typically found in contaminated water and soil. It is spread through direct contact with the contaminated source.

*Source: CDC http://www.cdc.gov/melioidosis/

- Per the CDC, A USDA employee has tested positive for antibodies to Burkholderia Pseudomallei. Further investigation is being done to find out if, when, and where the person was exposed to Burkholderia Pseudomallei. The employee was discharged from the hospital Sunday February 8, 2015. The person's travel history does include a visit to a region that may have provided an opportunity for exposure. Federal and state agencies are aggressively trying to determine if the illness was related to the facility visit or past travel. The employee is currently being treated with antibiotics and is undergoing further testing February 20, 2015. At the employees request no additional information will be given. Initial blood tests conducted by CDC have indicated possible current or prior exposure to Burkholderia pseudomallei in an animal clinic employee at the Tulane National Primate Center Research (TNPRC). The amount of antibodies found in the employee was just at the threshold for a verified positive result. This level is sometimes found in members of the public, even among those who have no history or knowledge of actual exposure. The employee is well and showing no symptoms of illness. Additional tests will be needed to confirm any exposure and, if confirmed, determine whether it likely occurred at the TNPRC or elsewhere. CDC estimates results could be known by early next week.
- All Select Agent Research at TNPRC has been suspended.

<u>Actions by Agencies</u> – All new updates will be in **BOLD RED** letters.

IC Group Meeting - The next meeting has not been scheduled.

St. Tammany Parish will hold a Town Hall meeting on March 31st at 6pm(cst). Location will be St Tammany Parish Council Chambers, 21490 Koop Drive, Mandeville, LA.

CDC

- The Federal Select Agent Program (FSAP) report was sent to Tulane electronically, and a hard copy was sent via FedEx.
- o FSAP will work with Tulane on addressing identified gaps.
- o The CDC laboratory has finished testing 70 specimens from the large batch of NHP sera we received last week. Two new animals were positive; these animals were tested because they were part of the group that had exposure to clinic from Oct 15-onwards.
- OGE 22 has a 1:320 titer drawn on 11/26/2014 (admitted to clinic Oct 8th-Nov 26th). IN52 has a 1:160 titer drawn on 12/10/2014 (admitted to clinic October 24-Nov 25th).
- O CDC thinks it is prudent to re-test these animals, look at their movements in clinic and field cages, and acknowledge that there is some uncertainty about their exposures and the interpretation of these current results. A rise in titer on re-testing would offer more evidence of acute infection. We are also communicating these results to Tulane.

• Laboratory results:

- On Friday afternoon, CDC's laboratory reported that all soil and water samples were negative for Burkholderia pseudomallei by two tests: polymerase chain reaction (PCR); and culture.
- OCDC staff involved in both the select agent and epidemiologic investigations continued their analyses of the material collected during their site visits. Decisions about future visits will be based on those assessments.
- o In the interagency scientific working group conference call, two environmental working groups were created. One group will assess risk to animal health, including wildlife, livestock, and domestic animals, and expects to begin its work next week. The other group is being organized to assess further environmental sampling needs inside and outside the Tulane facility.
- All air samples have been processed and are negative.
- Soil and water samples are expected to be complete by Wednesday, February 25, 2015. Interpretation of the results, in the context of other parts the investigation, will likely take longer.

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• Epidemiologic Investigation:

- o The team is still going over the information they collected last week.
- The CDC laboratory received the blood samples from Tulane, state, and federal workers that were collected by Louisiana DHH. They will start the analyses today or tomorrow.
- The CDC laboratory will be running the next batch of blood samples from non-human primates at the Tulane facility.

- o CDC has offered to test non-human primates that were received at the NIH in Maryland.
- CDC is awaiting receipt of blood samples from Tulane workers that were collected on Wednesday, February 18.
- OCDC investigators, with USDA investigators, are collecting additional information to assess whether monkeys were exposed to B pseudomallei in the animal health clinic. The additional information includes records of all monkeys seen in the clinic within specific time periods, as well as health and risk assessments for all workers with clinic access. A plan to collect blood samples from monkeys who were in the clinic at that time is in discussion.

Workgroup Update

- The technical working group will meet by conference call on Friday, February 20 at 10 AM CST.
- Supported the identification and coordination of representatives to the Science Technical Working Group.

• Safety Update

- o NIOSH staff completed the interview with 43 employees with ties to clinic. 19 have provided blood samples and 24 have not, but 18 said they would.
- O An email has been drafted recommending employees receive voluntary testing, and are being encouraged to contact the occupational health nurse who will make testing arrangements with the State health department.
- CDC/NIOSH provided updates to federal safety plan and submission to Tulane for review by safety officer. Safety Plan was finalized and Tulane biosafety officer has been designated as the Safety Officer in the plan.

• Animal Investigation

- The CDC lab obtained results for 67 animal specimens on March 11, 2015. One NHP had a titer of 1:80, which is an equivocal result so repeat testing has been requested. The NHP with the 1:80 titer presented to the clinic with dehydration, and decreased range of motion in the knee was detected. It tested positive for campylobacter and was treated.
- Results from a 115 Tulane NHPs are expected on March 13, 2015. 39 samples from Maryland were received and all were negative.
- 185 NHP samples are expected to arrive at CDC on March 13, 2015 and 455 next week.
 The CDC lab can only test about 200 per week.
- Dr. Bohm shared with investigators the timeline for the treatment of IB22, the animal that
 was euthanized last week, as well as a list of the different organ tissues that are being sent
 to CDC for testing.
- USDA is following up on the shipment of nonhuman primates from Tulane to other facilities in November. CDC also spoke directly with one of those recipients, the National Institutes of Health, and awaits additional information from them.
- o Discussions with USDA and other partners regarding sampling plan sites.
- CDC organized a call with participation of the Tulane laboratory scientist, TNPRC management, CDC (Alex Hoffmaster and his team, Henry Walke), USDA, and LA including the State Health Officer, State Epidemiologist, and State Veterinarian. The call discussed the approach regarding interpretation of laboratory results.
- O CDC received 43 sera from Tulane on 2/11.
- o Discussions with USDA and other partners regarding sampling plan sites.
- o Began CDC lab analysis of the 43 sera from Tulane received on 2/11.

• Human Investigation

The CDC lab obtained results for 28 human specimens. One employee had a weakly reactive titer of 1:80, and the other 27 were all negative. The State Epidemiologist notified

- the employee of the weakly reactive test result. A second specimen was collected from the employee and sent to the CDC laboratory.
- Four specimens are expected to arrive at CDC on March 13, 2015, including the second specimen from the employee whose first specimen was weakly reactive with a 1:80 titer. Results are expected by the end of the day, March 14, 2015.
- O Participated with interagency discussion regarding risk levels and testing needs. General consensus reached. FAQ related to sample collection, storage and confidentiality.
- O Developed script to communicate testing options with those possibly exposed and provided to State Epi for contacting and informing participants from 2/10 sampling event. Follow up will request participants to select testing or banking of their samples.
- Obtained access to risk surveys of workers and in progress of reviewing.
- o CDC received 1 human serum specimen from Emory on 2/11.
- o Reviewed risk surveys of Tulane workers. Identified that 9 workers are at low risk, with none found to be at moderate or high risk. All individuals claim to be using appropriate PPE other than clinical lab that grew bacteria in open area.
- o Met with Tulane staff to communicate options for serum testing. Separate meetings were provided for two separate risk groups.
- Ran IHA on NHP sera and inspector serum. Results expected by Friday 2/13.

• Environmental Investigation

- OCDC, EPA, USDA, and state and local representatives participated in a lengthy meeting to discuss environmental sampling. Outcomes of the meeting:
- There was recognition that to determine if there is B. pseudomallei in the environment, the primary focus should be on animal surveillance rather than environmental sampling.
- There was agreement that there is a need for Tulane to move forward with remediation in the field cages that house animals with clinical illness.
 EPA will follow up with Tulane for additional discussions of field cage remediation,
 - especially to prevent chemical contamination considering the shallow water table.
- OCDC will include a representative in the environmental assessment group that is reforming to assess risk of environmental spread and risk to wildlife and domestic animals in the area. The group will assess when to make its next visit to the facility.
- o CDC received Soil and air samples received from EPA and Tulane on 2/11.
- Discussions with EPA regarding testing sites and plan regarding decontamination if positive tests.
- o Processed 35 soil samples and started incubation in selective broth.
- o Transferred 6 air filters to GA public health for them to process with bio watch protocol.
- Received new lab equipment to troubleshoot filtration issues with analysis of 13 water samples received on 2/10. Lab analysis will be conducted on Friday 2/13.

• Select Agents Investigation

- o The team is writing their report. Awaiting their final conclusions.
- O B. pseudomallei inventory stock audit completed. Inventory is accurate and current.
- Four of seven persons of interest by DSAT were interviewed today, including one individual who is no longer employed by TNPRC. Three of these individuals are in the process of demonstrating their donning and doffing procedures to DSAT inspectors at this time.
- Review of a small portion of video on the entrances of the select agent laboratory in Building 5 shows various types of breaches in biosafety rules.
- O Demonstrations of PPE management observed by select agent inspectors show two consistent areas of risk:
 - Employees fail to tie their gowns in the back, allowing the gowns to flap, exposing the scrub layer underneath

- The type of foot covers used in the lab are cumbersome to remove, increasing the risk that the scrubs underneath them could become contaminated during the doffing procedure
- Ountil recently (January 2015) protocols in Building 5 involving Bp didn't require a shower out. Therefore, effective doffing technique was critical in preventing contamination of the scrub layer under the PPE used in the lab. Since the scrubs weren't changed, any contamination during doffing could be carried elsewhere on the campus.
- Two of the seven individuals of interest have duties involving the checking of infected animals in the laboratories, and the feeding of monkeys in the colony. Since the monkeys are fed by hand spreading the food, it is conceivable that an individual could contaminate the monkey food via this route.
- One of the seven individuals of interest (not one of the two individuals mentioned in the previous bullet) had on two previous occasions had been counselled for PPE infractions (NIOSH record review).

Communications

o CDC PIO continues to monitor press coverage and respond to queries.

• Other

O Demobilized two staff, Jason McDonald and LT James Gooch.

USDA

- USDA has finalized the survey questionnaire with input from the LDAF. We are waiting on OMB approval prior to administering the survey.
- USDA has incorporated all current comments in the Domestic Sampling Plan and presented it to LDAF. One last review will occur before it is ready for presentation to the UCG possibly on Monday.
- The Wildlife Surveillance plan summary has been prepared and comments received from the State, Tulane and USDA. In the final stages of finalization before being presented to the UCG.
- USDA has provided edits to the one pager for veterinarians to LDAF.
- USDA representatives will be on site at Tulane next week. The National and Local Incident coordinator along with Select Agent Inspector/Foreign Animal Disease Diagnostician will be traveling on Monday and arrive in the afternoon.
 - USDA provided a general statement to USA Today on USDA continuing its ongoing investigation on the facility. Did not provide any specific information.
- Continuing to work with Tulane and CDC in identifying NHP for next round of sampling next week
- Working with Tulane and State to finalize a short summary for GOSHEP on the Wildlife Surveillance Plan.
- Working with LA DAF to finalize the Information Sheet for Veterinarians
- Working with LA DAF to prepare the Domestic Surveillance Plan for GOSHEP review.
- USDA will meet with CDC next week at Tulane to discuss the epidemiologic analysis of the NHP testing.
- Held call with CDC to work out transfer of IHA assay and PCR test for future NHP surveillance activities
- The USDA National Veterinary Services Laboratory (NVSL) has received 2 raccoons, 1 possum, 1 rat and samples from 1 cat for testing. NVSL will perform cultures on the samples and send serum samples to an Australian laboratory for further analysis. This laboratory has more experience in conducting serum tests for Burholderia pseuodmallie in wildlife.
- In serum samples received, NVSL is requesting additional serum in order to have enough sample to test. Need 1 2 mililiters.

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- NVSL will reach out to the National Wildlife Health Center (NWHC) which is testing sick or dead wildlife to ensure they have appropriate SOP's for testing for this agent. One raccoon has been found sick at a control site and shipped to NWHC for testing.
- USDA employee observed sampling of NHP in the colony today at Tulane.
- USDA is working with Tulane and CDC to identify the next round of colony cohort testing to occur on March 11th.
- USDA is finalizing the employee questionnaire for Tulane employees. An emergency OMB approval is being obtained and we will work with Tulane to administer the survey. USDA will receive the surveys and analyze the results.
- USDA worked with the LA DAF to develop the domestic animal surveillance plan and is providing comments to finalize the plan.
- USDA is putting together a summary of the wildlife surveillance plan for the GOHSEP for review and comment.
- The USDA and CDC Select Agent Programs are working to finalize the select agent inspection report for Tulane. It is expected to be finalized by the beginning of next week.
- Provided the LDAF with a one page document for distribution to animal health diagnostic laboratories on laboratory testing and analysis for Burkholderia pseudomallei.
- The USDA National Veterinary Services Laboratory will discuss with CDC Special Pathogens Branch the laboratory capacity for long term testing of NHP and wildlife.
- Provided responses to USA Today on questions they posed to USDA on environmental testing and on the exposed USDA inspector.
- Provided GOHSEP a statement to use in future press releases for the wildlife surveillance plan
- Met with State LDAF and LDWF to develop wildlife surveillance plan. Draft has been generated for comment.
- Met with LDAF to develop passive surveillance plan for domestic livestock.
- Provided one page Burkholderia pseudomalei information sheet for accredited veterinarians to LDAF.
- Held call with CDC and Tulane on collaborating to develop one overall spreadsheet to capture all tested NHP, locations, date of test, and relationship to infected and tittered NHP.
- Will set up call with CDC and National Wildlife Health Center to discuss laboratory capacity and support for long term surveillance efforts of wildlife and NHP.
- Developing questionnaire for Tulane employees to find out contacts with domestic livestock and pets.
- Working with MD state veterinarian on trace outs of animals to other states
- Developing press statement on wildlife surveillance plan
- Provided Dr. Stacy with a one pager information sheet on Burkholderia pseudomallei for distribution to local veterinarians.
- USDA Risk Assessment group led a meeting to develop the wildlife surveillance sampling plan on site in Covington, LA.
- USDA provided comments to CDC and Tulane on the short term NHP sampling plan
- USDA Risk Assessment team is traveling to Covington, LA today. They will meet with the State and Tulane to discuss next steps for additional environmental sampling and wildlife sampling.
- USDA and CDC are working on a plan for the sampling of NHP in the clinic in order to systematically assess infection status in the clinic.
- USDA has added a senior epidemiologist to the team. He is working on putting together a
 summary of all animals tested with locations and cohort contacts in order to track the expanding
 number of potentially exposed animals. USDA has asked Tulane for data on the animals and
 requested test results from CDC on the NHP tested to date.

- Select Agent investigation: Working with CDC to complete our select agent inspection report.
- Status of NHP in veterinary clinic: Coordination call with CDC to discuss sampling plan of potentially exposed clinical animals and colony cohorts of known infected and positive titer NHP.
- Risk Assessment: Risk analysis team will travel to Covington and arrive Monday evening, February 23. They will work with LA DWF and LA DAF on the sampling protocol for wildlife as well as continued assessment of further environmental sampling.
- Tentatively scheduled to come back to conduct additional testing the first week of March.
- Collected samples from 43 primates within the facility on February 10, 2015.
- Currently working on a future plan to capture rats and cats for testing

<u>EPA</u>

- Tentatively scheduled to come back to conduct additional testing the first week of March.
- Tulane samplers with oversight from EPA Contractors collected 13 water samples from various locations on the South Campus and shipped to the CDC laboratory in Atlanta.
- Daily air samples collected from locations around the South Campus and have been shipped to CDC Atlanta.
- Soil samples have been collected from 35 locations outside of the cages on the South Campus and shipped to CDC.
- February 11, 2015, Tulane personnel with oversight from EPA collected a total of 5 samples from the two pens which housed the infected primates.
- One surface soil sample was collected from pen R24. This pen has a mostly gravel floor so only one sample was collected on February 11, 2015.
- Four samples were collected in pen G12. Two (4 point composite) surface soil samples were collected and two grab samples from a depth of approximately 20 inches were collected on February 11, 2015.
- Tulane personnel with EPA oversight collected two soil samples on February 12, 2015, from a parking lot on the North Campus used by vehicles which routinely travel between the two campuses.
- Swab samples were collected from two of the vehicles.
- A water sample was collected from the "Lift Station" on the North Campus.
- Three air samples were collected. Two of the samples were from the South Campus and one sample was located at the North Campus.
- All samples will be shipped February 12, 2015 to the CDC laboratory in Atlanta. This will conclude the sampling effort this week. EPA personnel will demob from the incident tomorrow.

DHH

- The following IDEpi activities were continued:
- -Attending UCG meetings as scheduled to obtain visibility on multi-agency response activities;
- -Participating in TNPRC conference calls to offer epidemiologic opinion;
- -Serving as liaison between CDC subject matter experts and the State Health officer;
- -Serving as liaison between subject matter experts at Tulane and the state response personnel;

- -Coordinating with Leisha Nolen at CDC regarding administering exposure history questionnaires as needed.
- The following IDEpi activities are planned:
- - IDEpi staff entered the recent 3 CDC lab test results into the ongoing database and started directly notifying the 4 persons who had blood shipped to CDC on 03/13/2015. There will be no additional blood draws from this group.
- - IDEpi is awaiting results for 1 sample shipped 3/13/2015. IDEpi is expecting a result Thursday.
- - IDEpi staff will administer CDC exposure history questionnaires to TNPRC employees having their blood drawn on 03/20/2015. Data will be entered into the ongoing Access database, exported and sent to CDC.
- On March 3, 2015 OPH sent 28 human serology samples to CDC Lab for B Pseudomallei testing. Results were provided to OPH/Epidemiology on March 10, 2015. By protocol, patients are notified of their respective results prior to distributing the information to broader groups via sitreps. The patients were notified of their respective results on March 11 and 12, 2015. The March 12th summary of results is below:
- Of the 28 samples, 27 samples were negative for antibodies to B Pseudomallei.
- Of the 28 samples, 1 sample (TPNRC employee) was inconclusive. A redraw was requested by CDC. Today 03/12/2015 a sample was obtained, it will be shipped to CDC for testing.
- Additional Human Serology testing:
- The CDC epidemiologist completed exposure history questionnaires for 2 additional TNPRC employees who had their blood drawn today, 3/12/15.
- 1 TNPRC employee who previously elected to bank their blood, requested to have it tested. This was communicated to the OPH laboratory and the sample will be shipped with the 3 samples collected today.
- On Feb 23, 2015, 16 human serology specimens were shipped to CDC to arrive 2/24/2015 at 0800 for confirmatory testing. On March 3, 2015 CDC provided the results to OPH Epidemiology all were negative for antibodies to Burkholderia Pseudomallei. As of today, March 4, 2015 all 16 individuals have been notified of their results.
- 28 human lab samples were sent to CDC today for confirmatory testing.
- All sera currently in the OPH Laboratory for which testing had been requested were sent to the CDC on Monday 2/24/2015.
- Attending daily UCG meetings at the St. Tammany EOC to obtain visibility on multi-agency response activities;
- Participating in TNPRC conference calls to offer epidemiologic opinion;
- Serving as liaison between CDC subject matter experts and the State Health Officer;
- Serving as liaison between subject matter experts at Tulane and the state response personnel.
- ID Epi staff will contact individuals whose blood was collected to determine preference for immediate testing or banking of samples.
- ID Epi staff will directly communicate test results to individuals who opt for immediate testing in order to protect the confidentiality of health information.

LDAF

- Worked with USDA to prepare and review Domestic Animal Sampling Plan, TNPRC Employee Domestic Animal Questionnaire, Veterinarian Information Sheet, Animal Owner Information Sheet, and Laboratory Information Sheet
- Participated in Wildlife Sampling Plan Conference Call
- Received negative Burkholderia testing results from DHH on two employees

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- LDAF participated in the USDA Risk Assessment Group Meeting to develop short and long term wildlife/feral monitoring plans.
- LDAF participated in the Risk Assessment Group site visit to determine areas for wildlife sampling surrounding the compound.
- LDAF will meet with the Risk Assessment Group to discuss short and long term monitoring of pets and livestock.
- LDAF has notified the State Vet of Massachusetts that another consignment of 4 monkeys was shipped from Tulane to Boston University on December 9, 2014.
- LDAF panning to include Burkholderia pseudomallei as a reportable disease by Louisiana accredited veterinarians
- LDAF consulted with Dr. Ken Angel of USDA VS on developing the questionnaire for pets and livestock of Tulane workers
- LDAF coordinating site visit by USDA VS Risk Assessment Team to Covington on Tuesday
- Participating in UCG Scientific Advisory Committee meetings
- Working with USDA Center for Epidemiology and Animal Health (CEAH) to develop an information sheet to inform accredited veterinarians about the disease
- Participating on CEAH's Risk Assessment subgroups to develop animal and environmental sampling plans
- Meeting with CEAH Risk Assessment group at 9:00am in Covington on Tuesday, February 24, 2015 at St. Tammany Parish EOC
- Emphasizing short term and long term monitoring plans
- LDAF participating in UCG Scientific Advisory Committee to develop action plan when tests results are received-air, soil, water, human, monkey
- LDAF assigned Foreign Animal Disease/Emerging Disease Incident (FAD/EDI) case number by USDA to participate in Tulane National Primate Research Center (TNPRC) investigation of Burkholderia pseudomallei (BP) laboratory breach
- 2 LDAF personnel TB tested, medically screened, and fit tested for PPE in preparation for site visit to Tulane
- 2 LDAF personnel were part of initial site visit investigation of TNPRC on Jan 22, 2015
- LDAF obtained testing protocols for environmental soil and water from CDC and NVSL in preparation for possible environmental sampling
- 17 LDAF personnel fit tested and medically screened to assist in environmental sampling or to oversee testing of primates
- LDAF personnel part of second site visit to Tulane to tour breeding colony and waste water sources on Feb 5, 2015
- LDAF personnel participating in daily Unified Command Group (UCG) Meeting and conference calls
- LDAF worked with USDA to develop Vehicle Cleaning & Disinfection Plan
- LDAF working with USDA Center for Epidemiology and Animal Health (CEAH) on risk of B. pseudomallei spread to livestock and aquaculture from Tulane
- 2 LDAF personnel tested by DHH for possible exposure to BP
- Attending UCG meetings in person and via conference call

LDWF

- As of 2/19/15, LDWF has brought the US Fish and Wildlife Service, USDA Wildlife Services and the National Wildlife Health Center into the loop.
- These agencies participated in the USDA Risk Assessment call at 10:30 am (Central time). All have agreed to advise or participate as needed.

• LDWF assigned the State Wildlife Veterinarian to help with develop protocols dealing with local wildlife that might have been around the research facility.

State of Maryland

- Maryland Department of Agriculture reports that samples have been collected to test for Burkholderia pseudomallei from 33 primates that entered Maryland from TNPRC in November 2014. The samples have arrived successfully at CDC and results are pending. Hold orders were cooperatively placed at both facilities.
- The Maryland Department of Agriculture reports that testing of trace forward animals in Maryland from the Tulane National Primate Center for Burkholderia pseudomallei will be done next week, March 10 and 11, for a total of 43 primates at two facilities prior to further movement of any of these animals within or outside of Maryland. Samples will be tested by CDC. None of these animals are cage contacts or otherwise known to be in contact with the identified cases at TNPRC, but given that completion of surveillance testing and epidemiology evaluations are still pending, we are requesting this testing as a precautionary measure to ensure that no spread of any potential carriers has or will occur in Maryland.

Public Information

- CDC PIO continues to monitor press coverage and respond to queries.
- Updates are being distributed to the media as new information becomes available.
- Saturday February 7, 2015 a press conference was held regarding the incident.

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Acronyms

Bpm - Burkholderia pseudomallei

CDC - Centers for Disease Control and Prevention

DHH – Department of Health and Hospitals

EOC - Emergency Operations Center

EPA - Environmental Protection Agency

GOHSEP - Governor's Office of Homeland Security and Emergency Preparedness

IC - Incident Command

LDAF – Louisiana Department of Agriculture and Forestry

LDEQ - Louisiana Department of Environmental Quality

LDWF – Louisiana Department of Wildlife and Fisheries

OPH - Office of Public Health

TNPRC - Tulane National Primate Research Center

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UCG - Unified Command Group

USDA - United States Department of Agriculture